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65. A method according to claim 19, wherein said step of hyperchannelizing said plurality of sub-band signals further includes a step of excising data streams with one or more bandwidths of interest from said plurality of complex spectral component streams.

66. A method according to claim 19, wherein said step of hyperchannelizing said plurality of sub-band signals further includes a step of time-sequentially windowing said plurality of complex spectral component streams.

67. A method according to claim 19, wherein said step of hyperchannelizing said plurality of sub-band signals further includes a step of separating said streams on the basis of cyclostationary filtering from said plurality of complex spectral component streams.

68. A method according to claim 55, wherein said step of hyperchannelization said plurality of sub-band signals further includes a step of selectively beamforming data streams from said plurality of complex spectral component streams.

69 A method according to claim 55, wherein said step of hyperchannelizing said plurality of sub-band signals further includes a step of synchronously processing said spatial separated or phase orthogonal plurality of complex spectral component streams received from a plurality of spatially separated or phase orthogonal antennas.

70. A method for detecting a signal originating from a given direction, comprising the steps of:

providing a plurality of sources or antennas;

receiving via said plurality of sources or antennas a plurality of wideband signals containing the same frequency range or ranges;

converting said plurality of wideband signals containing the same frequency range or ranges into a plurality of sub-band signals;

Fast Fourier Transform channelizing said plurality of sub-band signals into a respective plurality of hyperchannelized complex spectral component streams;

determining the angle of arrival of a range or ranges of hyperchannelized complex spectral component streams; and

selecting said hyperchannelized complex spectral component streams based on

the language suggests that the plurality of hyper... are selected while in fact one signal interest is so selected the should be amended to make it.

a direction of arrival activity analysis.

71. A method according to claim 70, further comprising a step of determining an angle-of-arrival of said signals containing the same frequency range or ranges and at least one signal of interest, wherein said plurality of sources or antennas are spatially separated.

72 A method according to claim 70, further comprising a step of determining an angle-of-arrival of said signals containing the same frequency range or ranges and at least one signal of interest, wherein said plurality of sources or antennas are phase orthogonal.

73. A method according to claim 70, wherein said step of determining an angle-of-arrival includes multichannel calibrating said plurality of complex spectral component streams and common filtering.

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74. A method according to claim 70, wherein said step of converting the plurality of said signals containing the same frequency range or ranges into a plurality of sub-band signals is phase coherent.

75. A system according to claim 36 further comprises a phase-coherent module for converting said sub-band data streams containing the same frequency range or ranges to be phase coherent, wherein said sensors or antenna sources sharing at least one common frequency range.

76. A method according to claim 49, further comprises a step of converting the plurality of said sub-band data streams containing the same frequency range or ranges to be phase coherent, wherein said antennas sharing at least one common frequency range.

77. A method according to claim 70, wherein said step of selecting said hyperchannelized complex spectral component streams based on a direction of arrival activity analysis includes a step of detecting at least one signal of interest based on said direction of arrival activity analysis.

78. A method according to claim 71, wherein said step of determining the angle-of-arrival includes implementing an N-channel interferometric algorithm to determine the angle-or-arrival.

79. A method according to claim 72, wherein said step of determining the angle-of-arrival

includes implementing a 2-channel commutated algorithm to determine the angle-of-arrival.

80. A method according to claim 72, wherein said step of determining the angle-of-arrival includes implementing a 3-channel comparative algorithm to determine the angle-of-arrival.

81. A system according to claim 8, further comprising a beamforming module for enhancing the signal quality of a plurality of range or ranges of said hyperchannelized complex spectral components from which at least one beam is formed.

82. A method for detecting a signal, comprising the steps of:

providing a plurality of sources or antennas;

receiving via sources or antennas a plurality of signals containing the same frequency range or ranges;

converting the plurality of said signals containing the same frequency range or ranges into a plurality of sub-band signals;

Fast Fourier Transform channelizing said plurality of sub-band signals into a respective plurality of hyperchannelized complex spectral component streams;

combining a range or ranges of said hyperchannelized complex spectral component streams to form at least one directional beam; and

performing signal detection on said beamformed hyperchannelized complex spectral component streams.

83. A method according to claim 82, wherein said step of combining a range or ranges of said hyperchannelized complex spectral component streams includes a step of applying predetermined weights for signal enhancement or interference rejection to said hyperchannelized complex spectral component streams of at least one desired beamforming direction, wherein said sources or antennas sharing at least one common frequency range.

84. A method according to claim 82, wherein said step of combining a range or ranges of said hyperchannelized complex spectral component streams further comprises a step of

determining said weights representing desired beamforming directions of at least one signal of interest.

85. A method according to claim 11, further comprising a step of a priori or adaptively beamforming said hyperchannelized complex spectral components to enhance the signal quality of a range or ranges of said hyperchannelized complex spectral components.

86. A method according to claim 25, further comprises a step of a priori or adaptively beamforming said hyperchannelized complex spectral data so as to enhance the signal quality in order to demodulate and recognize a signal of interest.

87. A method according to claim 86, further comprises a step of a priori or adaptively combining said hyperchannelized complex spectral data to enhance the signal quality of a range or ranges of said hyperchannelized complex spectral data.

88. A method according to claim 28, wherein said synthesis filtering step further comprises a step of a priori or adaptively beamforming said complex time domain data.

89. A method according to claim 88, wherein said synthesis filtering step further comprises a step of a priori or adaptively combining the hyperchannelized complex time domain data to enhance the signal quality of a range or ranges of said hyperchannelized complex time domain data.

90. A system according to claim 36, wherein said processing module further comprises a beamforming module for enhancing the signal quality of a range or ranges of channelized complex spectral component streams by a priori or adaptively combining the channelized component streams, wherein said sensors or antenna sources sharing at least one common frequency range.

91. A method according to claim 49, wherein said determining step further comprises a step of enhancing the signal quality of a range or ranges of the channelized complex spectral component streams by a priori or adaptively combining said channelized complex spectral component streams, wherein said antennas sharing at least one common frequency range.

92. A system according to claim 1 or claim 36, further comprises a consistent reference time frame source for synchronously converting sub-band signals from analog to digital for measuring the time of arrival of each wideband signal from each said receiver.

93. A method according to claim 49 or claim 70, further comprises steps of synchronously converting sub-band data stream from analog to digital based on a consistent reference time frame source, and measuring the time of arrival of said signals.

94. A system according to claim 92, wherein said consistent reference time frame is an accurate time reference selected from a group consisting of a Global Positioning System (GPS) clock and a cesium-beam or other atomic-beam reference clock.

95. A method according to claim 93, wherein said consistent reference time frame is an accurate time reference selected from a group consisting of a Global Positioning System (GPS) clock and a cesium-beam or other atomic-beam reference clock.

96. A system according to claim 92, wherein said consistent reference time frame distributes one pulse per second time tick to each said module.

97. A method according to claim 93, wherein said consistent reference time frame distributing one pulse per second time tick.

98. A method according to claim 86, further comprises steps of counting said hyperchannelized complex spectral data with reference to one pulse per second time tick and determining the time interval of sampling said hyperchannelized complex spectral data.

99. A method according to claim 28, wherein said step of conducting further processing of said demodulated signal includes steps of interpreting said complex time domain data and determining the time of arrival of said signal.

100. A system according to claim 92, further comprises a time-of arrival measuring module for calibrating delay from antennas or signal sources to ADC and determining the time of arrival of each wideband signal from each said receiver.

101. A method according to claim 93, wherein said step of determining the time of arrival includes steps of calibrating delay from antennas or signal sources to ADC, and determining the time of arrival of said wideband signals from the plurality of antennas or signal sources.

102. A system according to claim 36, further comprises: